REMARKS/ARGUMENTS

This application is under final rejection. Applicant has presented arguments hereinbelow that Applicant believes should render the claims allowable. In the event, however, that the Examiner is not persuaded by Applicant's arguments, Applicant respectfully requests that the Examiner enter the amendment to clarify issues upon appeal.

This Amendment is in response to the Office Action dated May 29, 2003. Claims 1-43 are pending. Claims 1-7, 14-15, 17-25, 32-33, and 35-43 are rejected. Claims 8-13, 16, and 26-31 are allowed. Claims 8, 10, 16, 26, 28, 34, and 43 are objected to. Claims 1, 8, 10, 16, 19, 26, 28, 34, and 37-43 have been amended. Accordingly, claims 1-43 remain pending in the present application.

Applicant appreciates the allowance of claims 8-13, 16, and 26-31.

Claims 8, 10, 16, 26, 28, 34, and 43 are objected to because of informalities. Applicant has amended claims 8, 10, 16, 26, 28, 34, and 43 according to the examiner's suggestions. Thus, the examiner's objection is traversed.

Claims 1, 4, 17-19, 22, and 35-42 are rejected under 35 USC 102(b) as being anticipated by Natarajan (5,742,594). The examiner states:

> Per claims 1, 39, and 41, Natarajan teaches a method for media delivery in a network, comprising the steps of:
> -determining an available bandwidth (N(k+1)) for completion of a file transmission (d(i,k+1) is a bandwidth, i.e. time slots, needed by each user I to complete his/her non-real time traffic which may include a file transmission as known in the art, see also col. 4, lines 1-17) for a time interval (a time interval is not defined, therefore, reads on a number of time slots in a transmission frame k+1, T(k+1), see also Fig. 2 and col. 3, lines 14-37) (N(k+1) is a total bandwidth, i.e. time slots, available in frame k+1 for non-real time traffic classes and can be determined by using eq. N(k+1) = T(k_1)=R(k+1)-C(k+1)-V(k+1), col. 3, lines 42-67 – col. 4, lines 28-34); and
>
> -(claim 1 only) allocating at least a portion of the available bandwidth (N(k+1)) to complete at least one file transmission task, wherein each of the at least one file transmission task may be allocated a different amount of the available bandwidth (it is inherent that a different amount of the available bandwidth, N(k+1), will be proportionally allocated to each of the

non-real time users for his/her at least one file transmission task according to each user's demand and the size of N(k+1) and as a size of the at least one file transmission is not identified, therefore, the at least one file transmission task of each user can be completely transmitted using the allocated bandwidth if its bandwidth is less or equal to the allocated bandwidth and each of the at least one file transmission task of each user may be allocated a different amount of the available bandwidth, col. 4, lines 9-16 and see also col. 3, lines 16-26);

-(claim 39 only) allocating at least a portion of the available bandwidth to complete at least one file transmission task, wherein each of the at least one file transmission task may be allocated a different amount of the available bandwidth (it is inherent that different amount of the available bandwidth, N(k+1), will be proportionally allocated to each of the non-real time users for his/her at least one file transmission task according to each user's demand and the size of N(k+1) and since a size of the at least one file transmission is not identified, therefore, the at least one file transmission task of each user can be completely transmitted using the allocated bandwidth if its bandwidth is less or equal to the allocated bandwidth and each of the at least one file transmission task of each user may be allocated different amount of the available bandwidth, col. 4, lines 9-16 and see also col. 3, lines 16-26), wherein the at least one file transmission task for each time interval is scheduled back-to-back (any remaining time slots, i.e. bandwidth, of the total time slots requested by each user that were not processed in the preceding frame is scheduled for process in the following frame, col. 6, lines 11-19 and 31-42);

-(claim 41 only) allocating at least a portion of the available bandwidth to complete at least one file transmission task, wherein each of the at least one file transmission task may be allocated a different amount of the available bandwidth (it is inherent that a different amount of the available bandwidth, N(k+1), will be proportionally allocated to each of the non-real time users for his/her at least one file transmission task according to each user's demand and the size of N(k+1) and since a size of the at least one file transmission is not identified, therefore, the at least one file transmission task of each user can be completely transmitted using the allocated bandwidth if its bandwidth is less or equal to the allocated bandwidth and each of the at least one file transmission task of each user may be allocated different amount of the available bandwidth, col. 4, lines 9-16 and see also col. 3, lines 16-26), wherein the allocated available bandwidth varies as a polynomial in time (since the requested amount of bandwidth of each user as a function of time is known throughout the time interval the request spans, therefore, the allocated bandwidth for each user can inherently vary as a polynomial in time, col. 6, lines 11-19)...

Per claim 37, Natarajan teaches a method for media delivery in a network, comprising the steps of:
-initializing a GSF (T(k)), wherein the GSF represents a total maximum bandwidth available in the network (ATM/B-ISDN network, Fig. 1, col. 2, lines 60-67 – col. 3, lines 1-13) in a time interval (a time interval is not defined, therefore, reads on a total number of time slots in frame k, see also Fig. 2 and col. 3, lines 14-37) for completion of a file transmission (non-real time traffic submitted by user I, col. 4, lines 9-3) (col. 3, lines 42-45 and col. 4, line 6);
-updating the GSF (N(k+1)) based upon bandwidth requirements for a plurality of LVS jobs

(C(k+1) and V(k+1)) for a time interval (a time interval is not defined, therefore, reads on a total time slots in frame k+1, T(k+1), subtracted by time slots required for video streams is updated and set to N(k+1), col. 4, lines 28-34, and see also col. 3, lines 2-3);
-determining a size of at least one file transmission task (Alloc (i,k)) which can be completely transmitted during the time interval based upon the updated GSF (it is inherent that a size of the time slots which yields a size of at least one file transmission task to be allocated to each non-real time user i in frame k+1 to meet his/her demand, d(i,k+1), can be determined through a simple modification of eq. Alloc (i,k), i.e. Alloc (i,k+1)=lesser of (integer part of [f(i,k+1)*N(k+1)], d(i,k+1)), col. 4, lines 16-25, and see also col. 3, lines 26-34); and
-allocating at least a portion of the updated GSF (N(k+1)) to complete the at least one file transmission task based upon the size and an allocation strategy (a predetermined allocation scheme based on priority, col. 5, lines 43 – col. 6, lines 1-54), wherein each of the at least one transmission task may be allocated a different amount of bandwidth (it is inherent that a different amount of the updated bandwidth, N(k+1), will be proportionally allocated to each of the non-real time users for his/her at least one file transmission task according to each user's demand and the size of N(k+1) and as a size of the at least one file transmission is not identified, therefore, the at least one file transmission task of each user can be completely transmitted using the allocated bandwidth if its bandwidth is less or equal to the allocated bandwidth and each of the at least one file transmission task of each user may be allocated different amount of the available bandwidth, col. 4, lines 9-16, and see also col. 3, lines 16-26).

Per claims 19, 22, 35-36, 38, 40, and 42, see previous office action.

In the section "Response to Arguments", the examiner states:

In the remarks, the applicant argues that the time interval in accordance with the present invention is the time for the completion of a file transmission, not slots in a frame...In response, a time interval is not defined in the independent claims 1, 19, and 37-42, therefore, it reads on a number of time slots in a frame...

Applicant respectfully disagrees. The present invention, as recited in amended independent claims 1, 19, and 37-42, provide a method and computer readable medium with program instructions for media delivery in a network, comprising: determining an available bandwidth for completion of a file transmission for a time interval, *wherein the time interval is a current time plus a maximum duration for the completion of at least one file transmission task*; and allocating at least a portion of the available bandwidth to complete the at least one file transmission task, wherein each of the at least one file transmission task may be allocated a different amount of the available bandwidth.

If a sufficient amount of bandwidth will be available on the transponder for long enough to complete at least one file transmission task, then at least a portion of the available bandwidth is allocated to the at least one file transmission task. (See Specification generally, and particularly at p. 7, lines 1-8, and at p. 12, lines 2-7)

In contrast, Natarajan discloses a method and apparatus for allocating shared bandwidth among a plurality of users by allocating a number of slots in a frame among the users. (Col. 3, line 3 – Col. 4, line 38) The Examiner argues that T(k) teaches the claimed time interval. In light of the amendments of the claims as set forth above, Applicant respectfully disagrees.

T(k) in Natarajan is the total number of slots in Frame K. (Col. 3, line 41) The number of slots requested by all of the users of a defined group is determined, and an allocation routine or procedure is utilized to allocate a number of slots in the subframe to each user of the defined group. (Col. 5, lines 56-61)

However, the time interval in accordance with the present invention is the current time plus a maximum duration for the completion of a file transmission, not slots in a frame. In Natarajan, to complete a file transmission, many slots in many frames would be required. Thus, Natarajan teaches allocation based upon control over slots in the frame, while the present invention recites allocation based upon a time for completion of a file transmission. In fact, the total number of slots required to complete a file transmission in Natarajan is not known at the time of the slot allocations, thus, allocation based upon a time for completion of the file transmission is not possible.

Therefore, Natarajan does not teach or suggest the combination of determining an available bandwidth for completion of a file transmission for a time interval, wherein the time interval is a current time plus a maximum duration for the completion of at least one file transmission task, and allocating at least a portion of the available bandwidth to complete the at least one file transmission task, wherein each of the at least one transmission task may be allocated a different amount of

available bandwidth, as recited in amended independent claims 1, 19, and 37-42 of the present invention.

In addition, per amended independent claims 37 and 38, Applicant respectfully disagrees with the Examiner that T(k) in Natarajan is analogous to the global step function (GSF) in accordance with the present invention. The recited GSF represents a total maximum bandwidth available in the network in a time interval, wherein the time interval is a current time plus a maximum duration for completion of a file transmission. In contrast, T(k) in Natarajan represents the total number of slots in a frame and does not address a total maximum bandwidth as claimed.

Therefore, Natarajan further does not teach or suggest initializing a global step function (GSF), wherein the GSF represents a total maximum bandwidth available in the network in a time interval, wherein the time interval is a current time plus a maximum duration for completion of a file transmission, in combination with the other element as recited in amended independent claims 37 and 38 of the present invention.

Claims 2-3 and 20-21 are rejected under 35 USC 103(a) as being unpatentable over Natarajan in view of Jamoussi et al. (USPN 6,128,280). Claims 5-7 and 23-25 are rejected under 35 USC 103(a) as being unpatentable over Natarajan in view of Jamoussi.

Claims 2-3 and 5-7 depend upon amended independent claim 1. Claims 20-21 and 23-25 depend upon amended independent claim 19. Applicant submits that claims 2-3, 5-7 and 20-21, 23-25 are patentable when read in combination with their respective independent claims 1 and 19, respectively. Applicant's arguments concerning Natarajan as applied to claims 1 and 19 apply here with equal force. Thus, even if Jamoussi teaches the limitations as argued by the Examiner, Natarajan in view of Jamoussi still does not teach or suggest the combination of determining an available bandwidth for completion of a file transmission for a time interval, wherein the time interval is a current time plus a maximum duration for the completion of at least one file

transmission task, and allocating at least a portion of the available bandwidth to complete the at least one file transmission task, wherein each of the at least one transmission task may be allocated a different amount of available bandwidth, as recited in the combination of claims 1 with 2-3 and with 5-7, and 19 with 20-21 and with 23-25 of the present invention.

Claims 14-15, 32-33, and 43 are rejected under 35 USC 103(a) as being unpatentable over Natarajan in view of Caldara et al. (USPN 5,748,629). The Examiner states:

> ...Per claim 43, Natarajan teaches a system, comprising:
> -a server (a microcomputer), comprising a manager (an allocation routine) for file transmissions via a satellite transponder (a wireless communications link interface, Fig. 1, col. 2, lines 7-19 and 64 – col. 3, lines 1-4), wherein the manager comprises a bandwidth allocation scheduler (a scheduler), the bandwidth allocation scheduler capable of determining an available bandwidth (N(k+1)) for completion of a file transmission (d(i,k+1) is a bandwidth, i.e. time slots, needed by each user i to complete his/her non-real time traffic which may include a file transmission as known in the art) for a time interval (a time interval is not defined, therefore, reads on a number of time slots in a transmission frame k+1, T(k+1), Fig. 2 and col. 3, lines 14-37) (N(k+1) is a total bandwidth, i.e. time slots, available in frame k+1 for non-real time traffic and can be determined by using eq. N(k+1) = T(k+1)-R(k+1)-C(k+1)-V(k+1), col. 3, lines 42-67 – col. 4, lines 1-34), and allocating at least a portion of the available bandwidth to complete at least one file transmission task, wherein a different amount of the available bandwidth may be allocated to each of a plurality of file transmission tasks (it is inherent that a different amount of the available bandwidth, N(k+1), will be proportionally allocated to each of the non-real time users for his/her at least one file transmission task according to each user's demand and the size of N(k+1) and as a size of the at least one file transmission is not identified, therefore, the at least one file transmission task of each user can be completely transmitted using the allocated bandwidth if its bandwidth is less or equal to the allocated bandwidth and each of the at least one file transmission task of each user may be allocated different amount of the available bandwidth, col. 4, lines 9-16 and see also col. 3, lines 16-26, and col. 5, lines 43-61).
>
> However, Natarajan does not teach a database table.
>
> Caldara et al. teaches a database table (a Switch Allocation Table) comprising information required by the manager for file transmissions (col. 6, lines 18-21).
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> Given the teaching of Caldara et al., it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a database table into the system of Natarajan to manage the allocated bandwidth as taught by Caldara et al. (col. 6, lines 18-21).
>
> Applicant respectfully disagrees. Claims 14-15 depend upon amended independent claim

1. Claims 32-33 depend upon amended independent claim 19. Applicant submits that claims 14-15 and 32-33 are patentable when read in combination with their respective independent claims 1 and 19, respectively. Applicant's arguments concerning Natarajan as applied to claims 1 and 19 apply here with equal force. Thus, even if Caldara teaches the limitations as argued by the Examiner, Natarajan in view of Caldara still does not teach or suggest the combination of determining an available bandwidth for completion of a file transmission for a time interval, wherein the time interval is a current time plus a maximum duration for the completion of at least one file transmission task, and allocating at least a portion of the available bandwidth to complete the at least one file transmission task, wherein each of the at least one transmission task may be allocated a different amount of available bandwidth, as recited in the combination of claims 1 with 14-15, and 19 with 32-33 of the present invention.

Applicant submits that amended independent claim 43 is allowable for at least the reasons set forth in Applicant's arguments concerning Natarajan as applied to claims 1 and 19 above. For the sake of brevity, these arguments will not be repeated. Thus, even if Caldara teaches the limitations as argued by the Examiner, Natarajan in view of Caldara still does not teach or suggest a server, comprising a manager for file transmissions via a satellite transponder, wherein the manager comprises a bandwidth allocation scheduler, the bandwidth allocation scheduler capable of determining an available bandwidth for completion of a file transmission for a time interval, wherein the time interval is a current time plus a maximum duration for a completion of at least one transmission task, and allocating at least a portion of the available bandwidth to complete at least one file transmission task, wherein a different amount of the available bandwidth may be allocated to each of a plurality of fie transmission tasks, as recited in claim 43 of the present invention.

Therefore, for the above identified reasons, the present invention as recited in independent claims 1, 8, 10, 16, 19, 26, 28, 34, and 37-43 is neither taught nor suggested by the

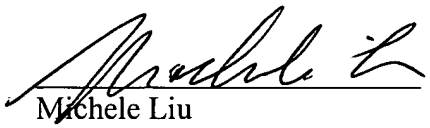
cited references. Applicant further submits that claims 2-7, 9, 11-15, 17-18, 20-25, 27, 29-33, 35-36 are also allowable because they depend on the above allowable base claims.

In view of the foregoing, Applicant submits that claims 1-43 are patentable over the cited references. Applicant, therefore, respectfully requests reconsideration and allowance of the claims as now presented.

Applicants' attorney believes this application in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicants' attorney at the telephone number indicated below.

Respectfully submitted,
SAWYER LAW GROUP LLP

July 31, 2003
Date



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